

**A brief history of the Yale & Towne Company  
And  
An examination of their time lock product line  
1875 through the 1970's  
From the perspective of a collector**

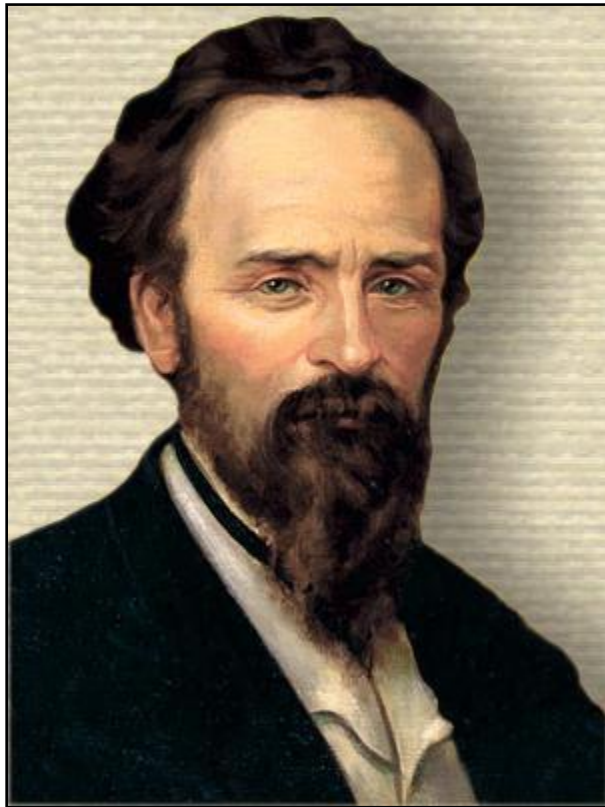


## **A brief history of the Yale and Towne Company and their time lock product line**

About 1840, Linus Yale Sr., began designing and manufacturing a series of innovative, high security locks at his Yale Lock Shop in Newport, New York. He specialized in expensive, handmade bank locks.

Linus Yale Sr.'s son joined his father in the business in 1850 and perfected and patented his father's pin tumbler cylinder lock and became the considered locking expert of his time. In 1862, Yale Jr. introduced the Monitor Bank Lock, marking the transition in bank locks from key locks to permutation locks, now known as dial or combination locks. The principles, embodied in his Monitor Lock, are now standard in combination locks throughout the USA.

After his father's death in 1857, Yale moved to Philadelphia and finally to Shelburne Falls, Massachusetts, focusing on designing and producing some of the highest security locks of the day. Yale's first firm in Shelburne Falls was a partnership with financial backer Colonel Halbert Greenleaf, and while Yale and Greenleaf operated for only a short period, it established both Greenleaf in his important role as a financier in the lock business and Yale in his role as designing genius. After the dissolution of the firm, Yale moved his business to Stamford, Connecticut, founding Yale Lock Manufacturing Company with engineer and financial backer Henry Towne in 1868. Relying on Yale patents, Yale's sterling name and sheer ingenuity, Yale Jr. and his colleague Henry Towne established the Yale & Towne Company in 1868, at the time employing 35 people. Linus Yale, Jr.'s death on Christmas day later that year left Towne with the reins of the company, and under his direction it would become and remain a major force in the bank lock and time lock market.



Linus Yale



Henry Towne

Here we see the beginnings of the intersection between the Yale and later the Sargent & Greenleaf companies with respect to their time lock business beginning with their agreement to divide and

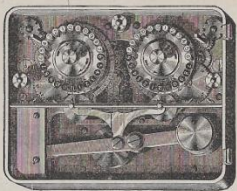


dominate the time lock industry as outlined in their "Contract Respecting Time Locks" document on October 16, 1877. This was thirteen years before the enactment of the Sherman Antitrust Act in 1890 and by today's standards would qualify as a "smoking gun" violation of federal antitrust law.

Innovation and litigation moved very quickly in the first decade after S&G introduced the first commercially produced time locks in 1874; their the Model 1 and Model 2, and Yale introducing their first time lock, the Model 1 Double Pin Dial lock just one later in 1875. The time lock business was very profitable. To illustrate the point, a Model 1 time lock movement from the E. Howard Company wholesaled to Yale for about \$55.00. Yale retailed the lock for \$450.00. This would and did invite competition which patent litigation was designed to fend off.

Both S&G and Yale were large, established companies and soon realized that they were facing lengthy and expensive litigation; it was only three years later they entered into their agreement. They then turned their attention to vanquishing any and all newcomers to the time lock business, destroying other early entrants beginning with Holms Electric Time Lock Company in 1879, the Pillard time lock by the New Britain Bank Lock Co., and the Edward Stewart time lock. Buyouts of new entrants, especially if their design had some novel and patentable innovation was also used, especially after 1889 after the US Supreme Court, upon the litigant Joseph Hall, invalidated the S&G and Yale patent pooling agreement. This ended patent litigation as a way of dominating the time lock industry, but it was a pyrrhic victory, since by this time, with the exception of Mr. Hall's Consolidated Time Lock Co., most other participants had been crushed or bought out.

## THE YALE TIME LOCK.



**ADVANTAGES.**

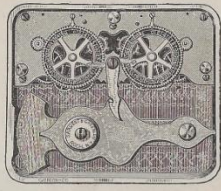
1. Absolute **Isolation** from external communication.
2. Great **simplicity in use**, requiring no attention but winding.
3. **Locking** at a predetermined hour, irrespective of the time when the door is closed, and so continuing daily, so long as lock is wound.
4. **Unlocking** effected at a certain **hour of the day**, and so continuing daily at the same hour, so long as lock is wound.
5. The movements are cushioned on springs, so that no ordinary jarring of the door can injure them, and the lock is provided with a device, so that any attempt to destroy the lock by dynamite will only cause it to lock fast. Should the lock be blown off the door, the boltwork would still be dogged.

**PRICES OF YALE TIME LOCKS.**

<b>Yale Time Lock, No. 1,</b> with "Sunday Attachment."	} \$450.
Size of case, $6\frac{1}{8} \times 7\frac{1}{2}$ inches— $3\frac{1}{8}$ inches thick..	
<b>Yale Time Lock, No. 3,</b> without "Sunday Attachment."	} 400.
Size of case, $6\frac{1}{8} \times 7\frac{1}{2}$ inches— $3\frac{1}{8}$ inches thick..	
<b>Yale Time Lock, No. 2,</b> with "Sunday Attachment."	} 450.
Size of case, $4\frac{1}{2} \times 5\frac{3}{4}$ inches— $2\frac{1}{2}$ inches thick..	
<b>Yale Time Lock, No. 4,</b> without "Sunday Attachment."	} 400.
Size of case, $4\frac{1}{2} \times 5\frac{3}{4}$ inches— $2\frac{1}{2}$ inches thick..	

MADE ONLY BY  
**THE YALE LOCK MAN'F'G CO.,**  
STAMFORD, CONN.

## THE SARGENT TIME LOCK



**ADVANTAGES.**

1. Absolute **Isolation** from external communication.
2. Great **simplicity of construction.**
3. Instantaneous **locking** on closing the door.
4. **Unlocking** effected by the lapse of a predetermined **number of hours**, as fixed each day when winding.
5. The lock so guarded against explosives that it will remain on the door as long as the door will hold together, and so constructed that the first serious effect of an explosion would make it impossible for the time mechanism to run down, while the bolt would be held in its locked position independently of, and uncontrolled by, the time movements.

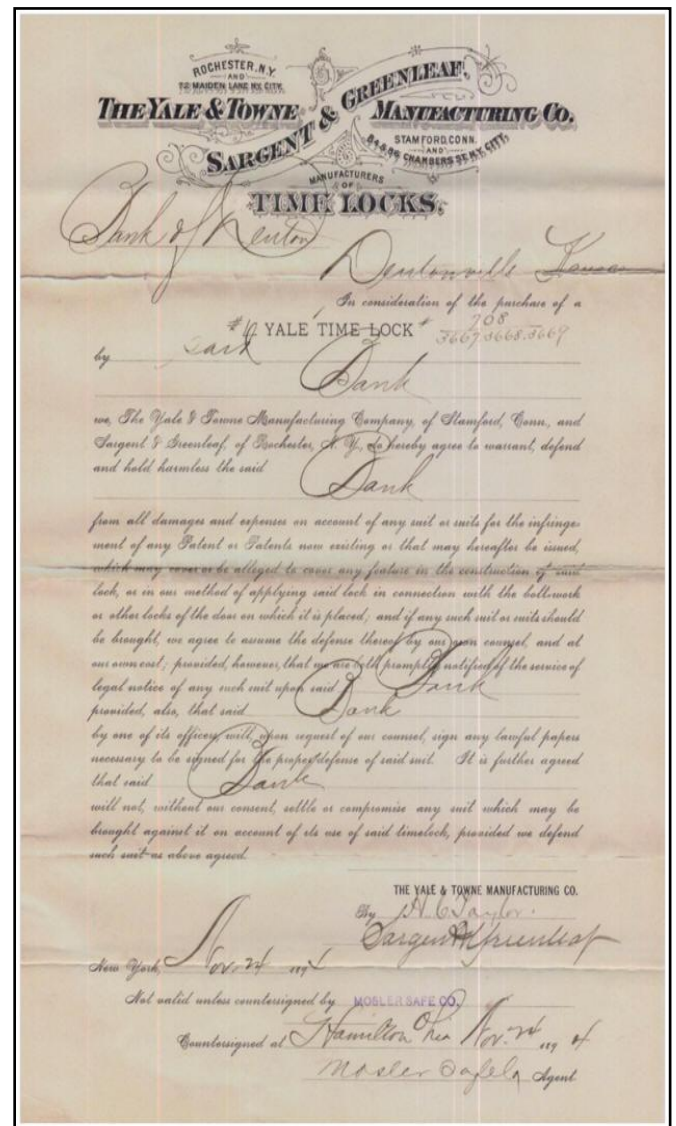
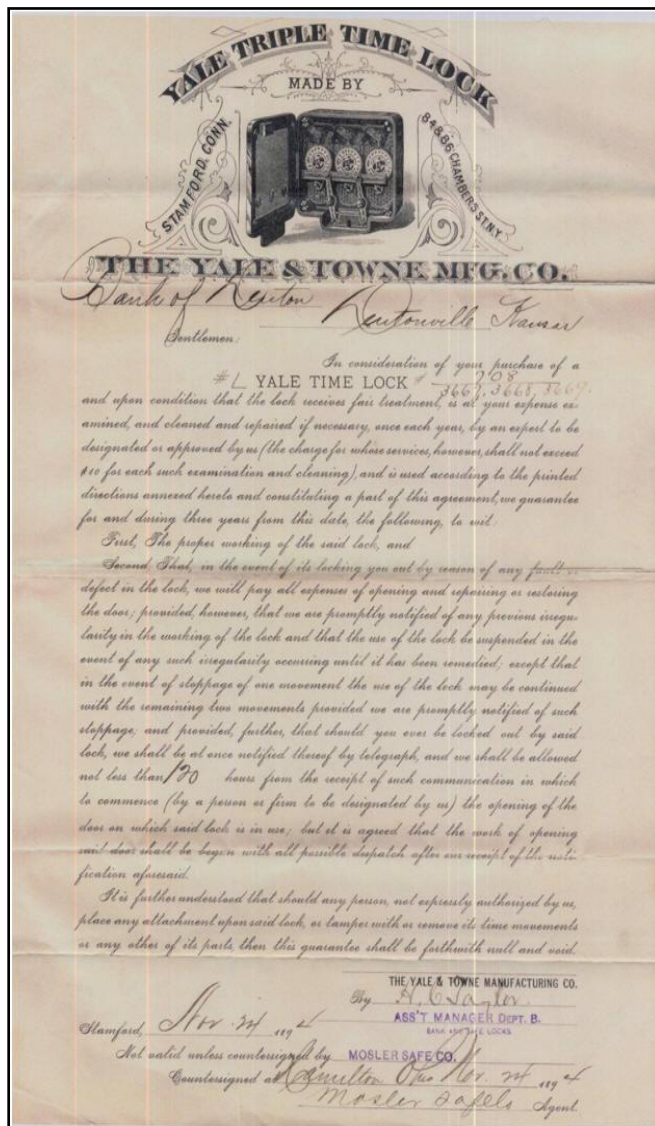
**PRICES OF SARGENT TIME LOCKS.**

<b>Sargent, No. 1</b> or Combined Time and Combination Lock.	} \$500.
Size of case, $7\frac{7}{8} \times 9\frac{1}{4}$ inches— $2\frac{7}{8}$ inches thick..	
<b>Sargent, No. 2.</b> Time Lock.	} 400.
Size of case, $6\frac{1}{2} \times 8$ inches— $2\frac{3}{4}$ inches thick ..	
<b>Sargent, No. 3.</b> Time Lock.	} 400.
Size of case, $6 \times 5\frac{1}{2}$ inches—3 inches thick.....	
<b>Sargent, No. 4.</b> Time Lock.	} 400.
Size of case, $4\frac{1}{2} \times 4\frac{1}{2}$ inches— $2\frac{1}{4}$ inches thick ..	
<b>Sargent Holiday Time Locks, Nos. 2 and 3.</b> (Can be set to remain locked up to 66 hours.) See sizes 2 and 3 above.	} 450.

MADE ONLY BY  
**SARGENT & GREENLEAF,**  
ROCHESTER, N. Y.

To drive home the point of collusion, above is a reproduction of a joint catalog released by S&G and Yale in 1883. They readily show their wares side by side and, not coincidentally, the pricing is identical

for time locks that would otherwise be in competition! Look carefully at the illustration of the Yale No.1; it is upside-down, reminiscent of the famous postage stamp the 'Inverted Jenny'. One can easily see how the catalog printer mistakenly looked at the S&G illustration seeing the two dials at the top and then applied the same thinking to the Yale time lock. The catalog has an insert showing the corrected depiction.

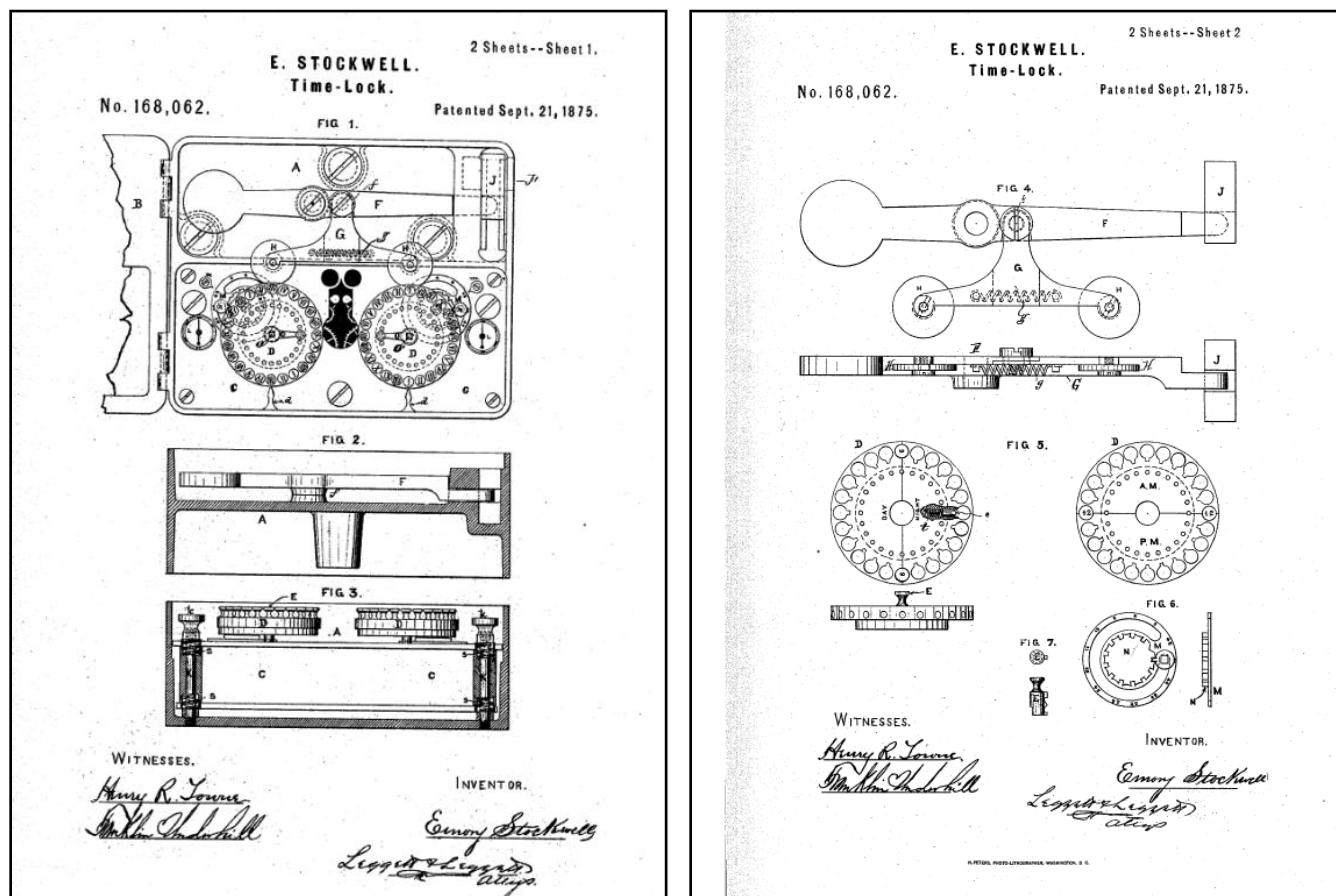


The first document is a sales receipt from the Yale Company dated November 24, 1894. Although it has an engraved illustration of a Yale Triple L, it is actually a generic receipt that could have been used for any Yale time lock product. The Triple L was introduced in 1892. Notice that by the time of this document, about two years later, the case number was 708 with movement numbers 3667, 3668, 3669, so production was already quite prodigious. The L-movements were also used in a variety of other Yale time lock models by this time, so their numbers would have diverged very quickly from the case numbers.

The second document is a hold harmless agreement concerning the use of Yale's time locks for the same customer also dated November 24, 1894. What is interesting here is the logo at the top prominently displaying the cartel of Sargent & Greenleaf and Yale companies which began in 1877. This cartel effectively prevented most other companies from entering the time lock business. The Sherman Antitrust



Act was passed in 1890, but apparently it was not applied to these companies at the time of this document.



The illustration above is the initial patent for Yale's first time lock design issued in September of 1875 to Emory Stockwell, a life-long employee of Yale. He was instrumental in developing many of Yale's most important designs. Patents and the numerous infringement lawsuits to protect them were a major part of the way the time lock industry developed and which players survived and prospered.

We now turn to an examination of Yale's line of time locks. As with their counterpart, S&G, there was a limited set of basic styles which then had a number of special or custom variants in design. This does not include the purely cosmetic changes in case design and finishes that took place as safe and vault styles evolved from 1875 through the start of the Great Depression when orders for time locks virtually ceased. The advent of WWII and the domestic metal drives to feed the war effort, resulted in a large number of time locks being destroyed for the bronze metal content of their cases and movement plates. Time lock production did not fully resume until about 1950. There were five main time lock makers prior to the Great depression, S&G, Yale, Hall/Consolidated, Diebold, and Mosler. With the exception of a few Models by S&G, Mosler, Diebold and Yale survived to continue to produce a full line of time locks post WWII. Yale merged with Eaton Corp. in the early 1970's and in 2000 ceased making time locks when their Bank Lock division was sold to Diebold. About the same time the rest of the company's domestic lock and door hardware manufacturing facilities became a division of Assa Abloy, Stockholm, Sweden.

Countering the destruction were the salvage efforts of individual safe techs that at the time recognized the beauty and craftsmanship of these mechanisms and often removed them before the rest of the safe

was scrapped. Even so, only a few percent of the original production of each model survive, especially the early and limited production runs. This holds true for the other early major makers.

Yale also pioneered the concept of the interchangeable time lock movement within a multi-movement time lock, in their Type B through E time lock models beginning in 1887. These also were the first to use an “off the shelf” pocket watch movement in place of the specially designed time lock movements provided by the E. Howard Company which were used by the entire time lock industry at the time, with the exception of S&G the only company to make their movements in-house. These Yale time locks were commercially unsuccessful, due to reliability problems with the Waltham-supplied movements that may have not been up to the challenge of the demands of a time lock mechanism. The interchangeability concept was soon adopted by S&G in 1888 but not fully implemented until 1895. Full interchangeability that we take for granted today was still not perfected at the time. In 1906 Banker’s Dustproof introduced a line of time locks using 18-size Model #4 pocket watch movements supplied by the Illinois Watch Company. This innovation was appreciated by the Mosler Safe Co. which bought out Victor in 1915 and then introduced their own line of time locks based on Victor’s design in 1916.

A Yale sales brochure from the late 1920’s claims that 30,000 Yale time locks were in use at the time. This seems reasonable as Yale’s most popular model; the Triple L had a run of over 16,000 units.<sup>1</sup>

Below will be explored the various models and design features that would be interesting from a collector’s perspective.



These two photos show Yale’s first time lock their Model 1 with one of the earliest movement serial number known, #381, and a three movement lock, model K3L produced some time in the late 1960’s. We now examine some characteristics of the Yale line of time locks and their changes through time.

### **Case finish.**

These dates are approximate since safe makers adopted new designs at different times and customers always had the option of asking for a specific design for a few years after the standard style had changed.

Nickel plate with milled diamond pattern: 1874 through about 1908

Bronze with milled wave pattern, aka the Bronze Wave: 1908 through about 1925

Nickel satin finish, the art deco era: c.1925 through 1929.



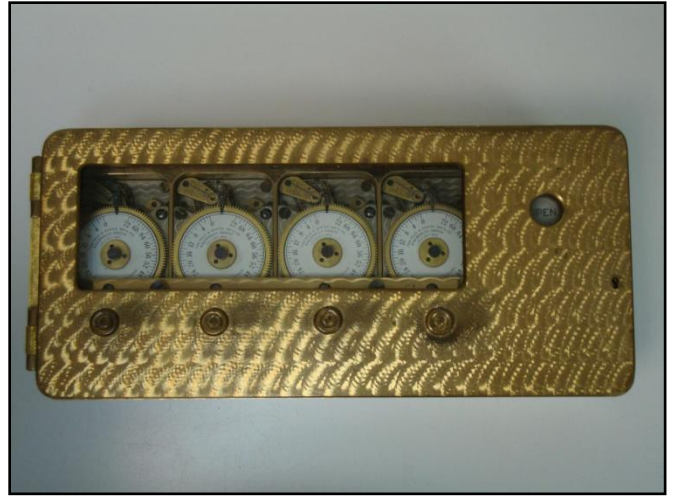
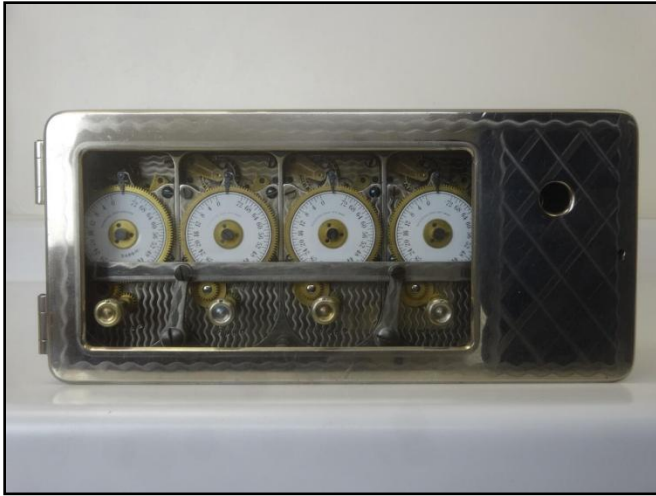
The first three time locks are all Yale's Triple O models and have all three types of standard case finishes. The fourth photo is a Triple K with plain bronze finish. The bronze wave and satin finishes overlapped each other by several years depending on the style of safe it was installed in. There were also a few special order satin bronze cases, but those were never popular. It was not easy to find a single model that incorporated all four styles.

### **Door design:**

All Yale models had movement winding through the door as the bolt was set automatically through this procedure whether for use on a manual or automatic bolt motor dogging system. In contrast S&G used a manually set bolt dogging procedure requiring the time lock door to be opened on their models that operated on conventional bolt work. These locks did not need winding through the door and had full glass doors without holes throughout their production run.

The door design for Yale models introduced before 1905 had a full glass opening with the movement winding holes through the glass and are designated as a version 1 (v.1). After that time Yale changed the door design to a half-glass opening with the winding holes through the metal portion of the door, (v.2). This eliminated glass damage from careless operator winding, but made the appearance of the locks from as collector's viewpoint less attractive since much of the mechanism was hidden. This designation held for their Triple L, K, P, and Quad K, M, N,

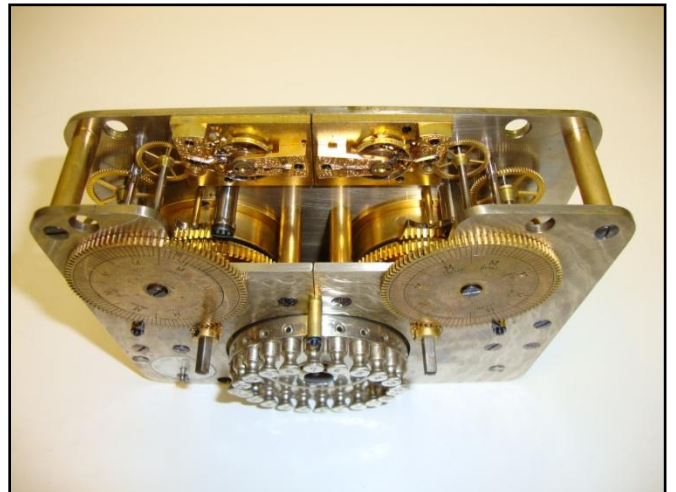
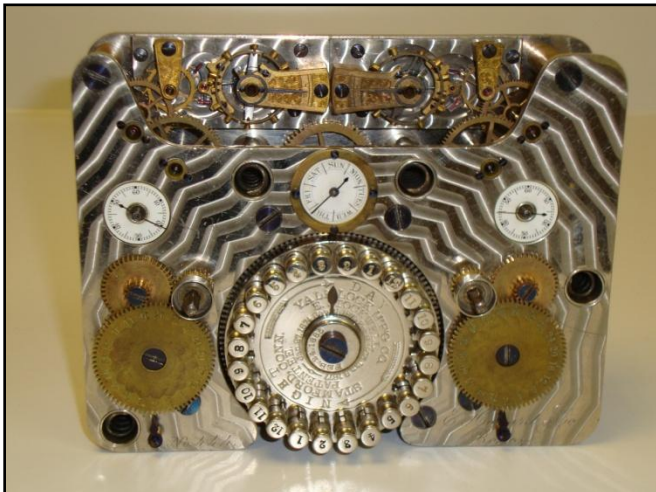
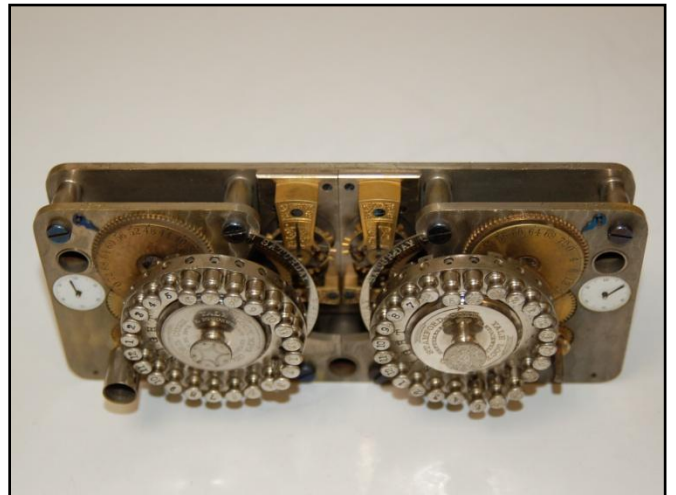




By the time the bronze wave and satin nickel design were introduced all models used the half-glass opening unless otherwise by customer special order.

### **Movement design:**

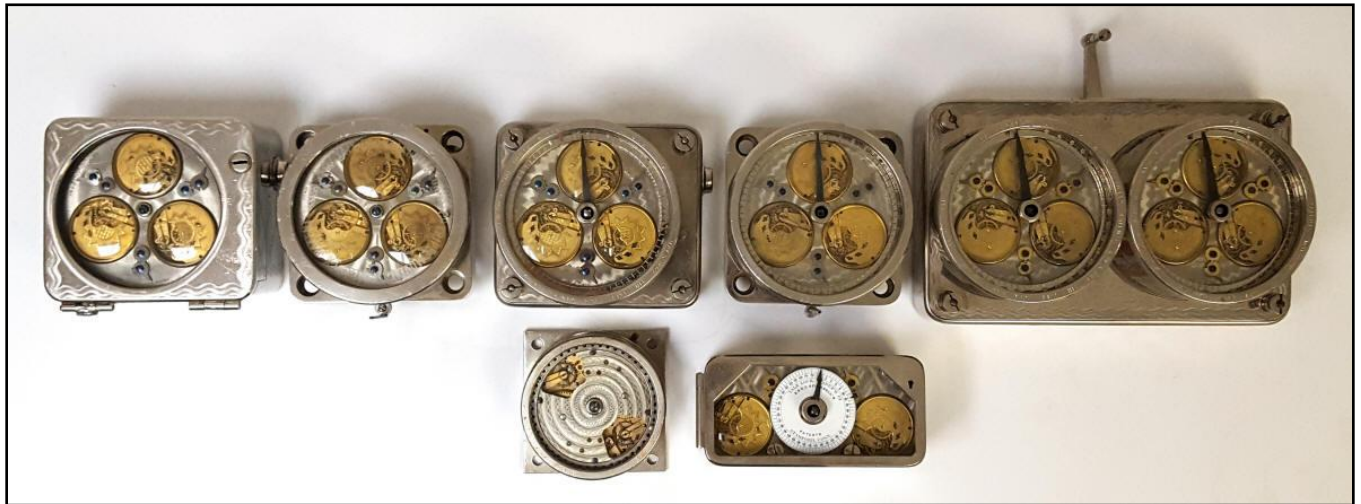
Integrated movements Models #1 though #4





The early entrants into the industry, S&G and Yale immediately saw the need for redundancy in their time locks. There were two independent movements of which only one was needed to put the lock off guard and allow the owner to dial in the combination to open the safe. Hall and later Consolidated was the exception with their single movement offerings where they had elaborate override systems to compensate for the obvious problem of a lockout from a single movement. They attempted to gain market share by offering a less expensive alternative with only one movement vs. the two offered by S&G and Yale. This was marketed as their Infallible Lockout Protection system and met with some success. However all makers who had two redundant movements (and only two were offered at this time) fabricated these upon a single movement plate. So if one movement was malfunctioning, the entire mechanism containing both movements had to be removed for servicing leaving the owner unprotected. My guess is that this was a rare event. Probably a normal clean and servicing would be performed 'on the spot' by the service tech. This would require that the tech be a professionally trained person with all the equipment on site to do the job. I have done this work, and it is not easy to do a complete overhaul of a time lock mechanism even at my bench where I have all the comforts of home let alone in a satellite location. If there was a major problem like a cracked jewel or if the tech made an error causing the balance wheel hairspring to be deformed by mishandling, the owner would be left unprotected since at this time there was no ability to interchange these combined movements between locks. The entire mechanism containing the pair of movements could be swapped out and if one sees a case serial number with a very large difference between it and the movement then one can assume the movement was swapped out at some point.

The beginnings of modular movements: Type B through EE.

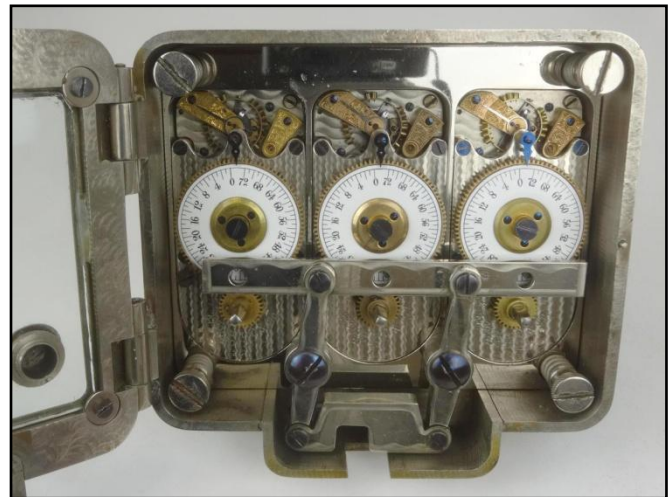


Top row from left: Type B, C, D, E, EE (The Sextuple). Bottom row Type A, patent model prototype, Type G, never commercially produced.

Yale was not the first to make a time lock with modular movements, Amos Holbrook did this in 1858, but only a dozen were made and it had no real impact on the later time lock industry. Yale introduced modular movements in the form of separate Waltham watch movements in their Type B through G line of time locks introduced in 1888 through 1891. These were not a commercial success; there were problems with the reliability of the watch movements to perform their function, and few of these locks were produced. In Yale's design it was very difficult to actually remove and replace the movements and required a major disassembly of the lock to accomplish this and at this time the movements were still not fully *interchangeable*, they still

had to be replaced in the same order they were removed. If the maintenance person saw a movement that needed attention it would be removed for off-site service and the remaining two employed to keep the lock functioning, a slightly greater risk of lockout but still not by much. True interchangeability where a technician could simply arrive with a movement of the same model as the malfunctioning one and could do a simple swap out came with the introduction of the model Triple L in 1892, designed to operate with a bolt motor and the Triple K for manual boltwork. Their movements were truly interchangeable. S&G introduced modular movements in 1889, but were not fully interchangeable until 1892.

At this juncture there needs to be some clarification about what exactly interchangeability meant in the 19th century. Interchangeability of the individual movements did not extend to the individual components of the time lock mechanism and especially the components within the movements. The term *interchangeable* tends to imply the ability to assemble a mechanism - typewriter, watch, clock or firearm, from a supply of parts chosen at random. In fact, every nineteenth-century manufacturer of complex mechanisms designed those mechanisms to be adjusted at the time of assembly. Thus the *interchangeable* parts were interchangeable but only to the degree necessary; the degree of interchangeability was stipulated by the design of the product. The proof of this is the fact that nearly all time lock makers use consistent numbering systems for their components. For example a case may be stamped 393 and if so then the door, drop bolt and snubber bar assemblies will also be marked with the same number. Movements were also individually numbered and the numbering was consistent through the escapement assemblies, i.e., the balance wheel, balance cock, and lever escapement. This numbering system was followed by Yale until they subcontracted their product to foreign manufacture in the early 1960's. Multi movement locks would be consecutively numbered. Proof of full interchangeability with respect to the movements is the fact that most time locks seen in the collector's market today do not have consecutive serial numbers as they have had their movements swapped out during their time of service. This indicates that the time lock has a long service life to have had movements changed out. Consecutive numbers are always more desirable and usually indicate a lock that was in service a much shorter period of time.



The Triple L went on to be Yale's most popular time lock with 16,000 units produced from 1892 through 1929 making it the largest production run of any time lock of the era. The L-movement found in that lock was produced in the greatest number of any type of time lock movement made by any maker up to that time.



The Triple L operates on an automatic bolt motor. Automatic systems eliminated the need for manually operated boltwork, the handle that one would crank after the correct combination was dialed in. The advantage to this design was the fact that there was one less opening, and thereby way for a safe cracker to enter, was eliminated from the door. The disadvantage is expense and further complexity and the fact that the bolts had to be pretty violently shot open and closed. If there is some problems with friction from corrosion or other issue, one can feel the resistance when manually operating the bolt work. But with the automatic, the powerful springs take over and if the jam is bad enough, the bolt motor may not be able to withdraw the bolts. Like any consumer product, safe design went through different styles and popularities. Manual bolt work was the first type available. Automatics gained popularity in the 1880's with the rise of the time lock, without which the automatic system could not operate. The bolt actuation devices continued to grow in their size and power eventually operating on huge twenty to thirty ton round doors. Yale employed their largest and most powerful No.1 dual bolt motor coupled with their Model Quad N time lock for this purpose, below and was the zenith of automatic bolt actuating designs.





After the 1920's the automatic began to fall out of favor and the manual bolt work became dominant again. Larger safes and especially walk in vaults used manually operated bolt work as the size and number of bolts precluded the use of a spring operated device to move them.

There was a report issued to the Secretary of the Treasury titled Improving Vault Facilities of the Treasury Department, and circulated to the 53rd Congress in 1893. It makes for fascinating reading where in text and numerous photos many of the popular models of safes of the day were systematically broken into. Nitroglycerine could be used upon the seam of a door jamb so no hole need be in the door whatsoever. The most interesting is a manual drilling device that could cut a 4" hole through the side of a safe in less than two hours! These are tools only the most sophisticated burglar would have, but it proves the fact that no safe is "safe"!

#### **Dial, movement plate and movement size description:**

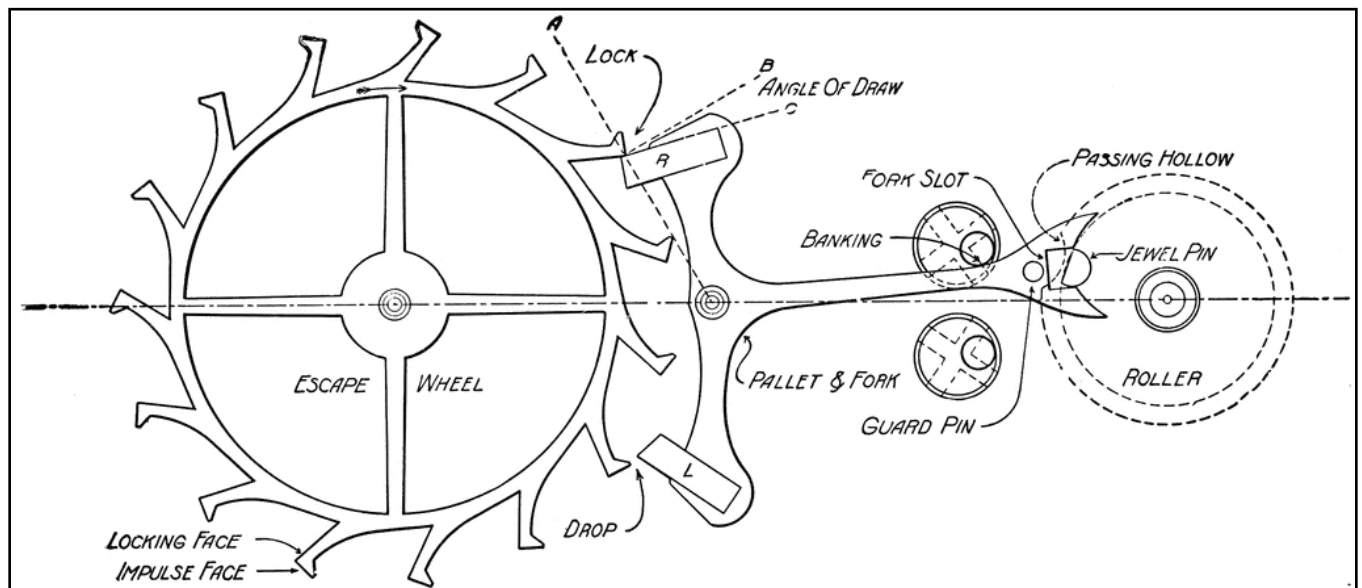
Yale introduced their Model 1 and 3 models in 1875 using a pair of forty eight hour Seth Thomas movements. These proved unsatisfactory and Yale switched to E. Howard to make their time lock movements in June of 1876. Later when the company introduced their modular L-movement E. Howard was sourced from 1892 through 1902 when E. Howard exited the business, with the exception of a two year period covering 1892-1894 when they were sourced from the Boston Clock Company. The reason is unknown. After 1902 Seth Thomas made all of the company's movements until sometime in the 1960's when this was sourced to imported movements from Switzerland.



When Yale introduced their Models 1 and 3 in 1876, the movement duration was fifty six hours. This was considerably longer than S&G's Model 2 with forty eight hours. Sometime around the early 1880's Yale lengthened the duration to seventy two hours. In 1892, when the L-movement made its debut the standard timer duration was seventy two hours. After WWII the durations tended to move to 120 hours. But Yale seemed to stay with the seventy-two hour duration for their L and T-movements. There are no examples of a longer duration dial made from enamel for Yale other than seventy-two hours.

There are also few examples of ninety six hours movements but these also look to be paper-dial retrofits and are relatively few in number. Yale offered to retrofit seventy-two hour M-movements to 120 hour, a procedure that was still being done until 1970. The reason for this was the fact that Seth Thomas has ceased making the M-movements in 1916 before the extended duration was introduced. The retrofitted dials were made with a matte paper dial face and were a rather unattractive alternative, in this author's opinion, to the original seventy-two hour enamel dial. A large number of movements were converted, so in this case the shorter duration, unconverted movements are more collectible.

Longer duration movements, all things being equal, are generally considered more desirable as they were more expensive and thus rarer than their shorter duration counterparts. This also holds true across the S&G line. That company continued to make all of their dials of any duration from enamel, but they too offered retrofitting of their early single plate designs the Model 2 through Model 6.

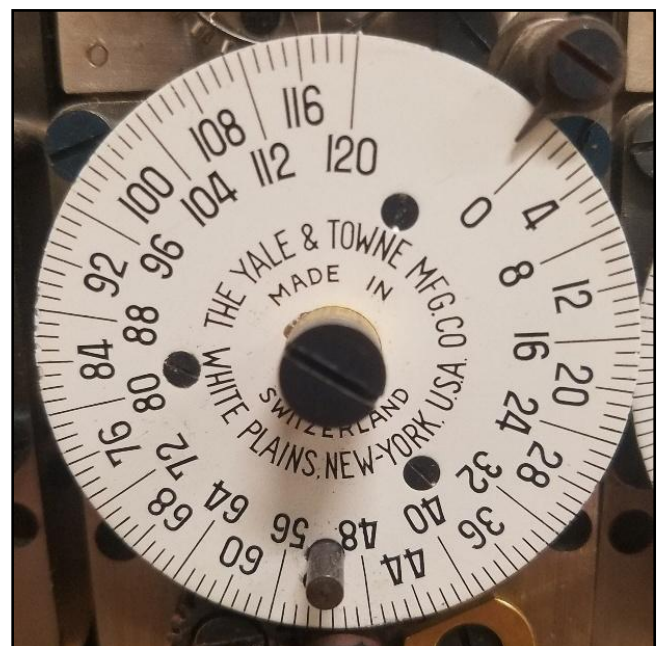


The illustration above shows the escapement layout of the typical Yale movement. It is an in-line lever escapement design, and was exceptional in its ability to be "self starting" when power was applied to the movement. This author has seen movements that have been dormant for decades and upon a few clicks of the main spring start right up.

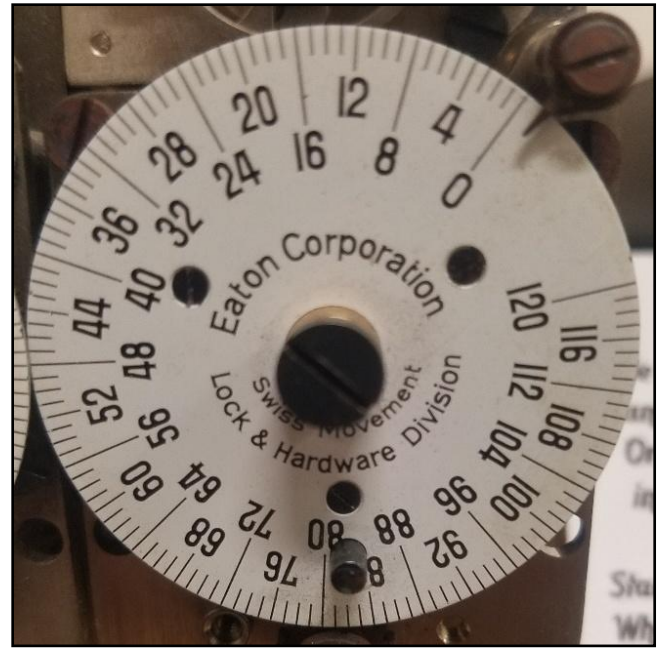
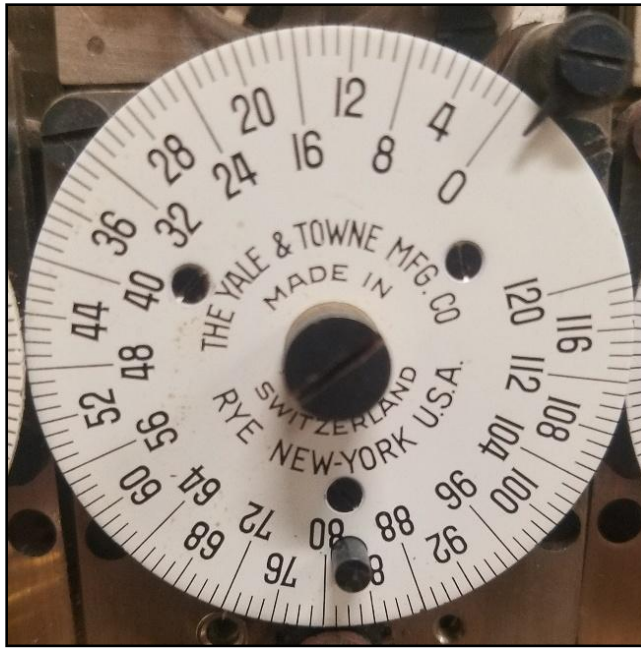


This photo shows all five models of Yale's modular movements, their designation and year introduced. From left: L-1892-1920's, M-1893-1916, T-1907-1950', T-DAT-1927-1950's, and Y-1909-1920's.

The Y-movements introduced in 1909 are the least common as these were only used on the pie models. The T-movements are also less common as these were also introduced late in the production in 1907. They were found in the smallest locks and these were often overlooked by salvagers when a safe was junked. All locks equipped with these movements had winding through the metal door portion. The T-intraday movement is found in all models of Yale's intraday timers, (Delayed Action Timer - DAT designation), was a modified standard T-movement introduced in 1927 and with the exception of the 421 DAT, all of these time locks used matching style T-movements for the other movements within the lock. The M-movement was no longer produced after 1916, but Yale actively updated these and to a lesser degree L-movements to longer duration of 96 and more commonly 120 hour durations, these all had paper dials replacing the original enamel 72 hour dials. This went on until Yale left the business in the 1970's extending the life of some of their pre-1900 models.







There were four different dial designs, differentiated by the company's location. Stamford, Conn. was seen until the 1950's and was used on all of the enamel dials. Longer duration movements were introduced after WWII and those dials were made from a matt finish style dial also with the same designation. White Plains, New-York. U.S.A. appeared from the early 1950's through the late 1960's and by this time forward the movements were all Swiss made. Rye New-York U.S.A. appeared from the late 1960's through the early 1970's and Eaton Corporation Lock and Hardware Division from the early 1970's until production ended in 2000 when it was sold to Assa Abloy.

### **Overview of product line:**

The first time locks were designed to operate on bolt work actuated manually on the outside of the safe door. By the end of the 1880's bolt works which operated automatically and were actuated by a powerful spring-wound bolt motor, controlled by the time lock inside the safe rose in popularity. This began to fade between 1910 and the beginning of the First World War with the return of hand actuated safes. One can see in Yale's new model offerings around this time were all designed for manually actuated bolt work. Yale did continue to make some automatic bolt work models that had been introduced earlier, the Triple L the foremost example. Reflecting the trends in safe design, the Triple L was ended in 1929 while the Triple K was continued until the early 1950's.

All of the letter-designated time locks introduced before 1900, Models B through N were brought to market in a fairly short time between 1888 and 1893, just six years. Leaving out the failed B through G series when Yale experimented with Waltham pocket watch movements, the time shrinks to two years for the K through N models. These would form the backbone of Yale's product line until 1929 when nearly all time lock production ceased and did not recommence with any appreciable sales volume until around 1950.

Models introduced after 1900 were designed for smaller safes and money chests as well as the hugely popular "Cannonball" type of safes. The moniker was apt as the safe was spherical in shape, designed to deny the edges and corners of a conventional safe as opportunistic areas for pry bars and explosives. The Corliss Safe Company pioneered this design in 1878 with a line of large safes from their smallest model

called the 'Spherical' weighing in at eight thousand pounds all the way up to the 'Planet' at over thirty thousand pounds. The Corliss line used an S&G time lock #4 specially designed for that safe.

Other makers, including Ely-Norris Safe, Victor Safe, Manganese Steel and Mosler made round models; all generically called cannonballs. Not all were spherical, some were cylindrical. These were for the most part smaller than those offered by Corliss with a model by Victor weighing in at a featherweight two thousand pounds. The Cannonball safe enjoyed popularity until 1929. Yale introduced their Y-361 for Ely-Norris Safe in 1909, commonly called the "pie" time lock because of its round shape and three pie shaped slices for each movement cavity. The lock was a completely new design from the time lock movement to the case and was the last major design change made in the time lock industry.

Other models were meant for use in small safes and money chests. The introduction of the T-movement in 1907 was, until the Y-movement in 1909, the smallest time lock movement made. Unlike the Y-movement, it was meant for use in a variety of time lock models. These allowed for small two and three movement full-featured time locks in their two movement T221 and three movement T321 models. By substituting a short duration T-movement timer that could be used for as short as 15 minutes or up to 7 hours for one of the standard movements, these locks could be made into delayed action timers, (DAT) for use as both long, and short term intraday time locks, especially useful in money chests and banker's teller drawers to thwart daytime robberies. The T221 was the smallest commercially successful two movement made at 3.875" w x 3.4" h x 2.5" d.<sup>2</sup>

The list below shows the known Yale time lock models made between 1875 and the mid 1970's in chronological order, thirty three models; these do not include special orders. There are a few additional models shown in Yale catalogs, but these have yet to be seen by this author. The first thing one sees is Yale's very large number of offerings compared to their contemporaries: Sargent & Greenleaf at twenty three, Consolidated with twelve, Diebold with six and Mosler with eleven.

### **Standard Models introduced before 1900:**

Model 1 and 3, 1875-1900, Double Pin Dial with and without Sunday dial option, manual boltwork (MBW)  
Model 2 and 4, 1884-1900, Single Pin Dial with and without Sunday dial option, MBW  
Type B, 1888-1890, three American Waltham size 14, model 84 pocket watch movements, MBW  
Type C, 1888-1889, same movements as Type B, automatic boltwork (ABW)  
Type D, 1889-1892, Type DD - none known to survive at this time, six movements like Type B, MBW  
Type E, 1889-1892, Type EE, "The Sextuple", six movements like Type BB, ABW  
Type G, 1889-1891, single movement like Type B, ABW  
Triple K, 1892-1952, three L-movements, MBW  
Quad K, 1892-1952. Four L-movements, MBW  
Triple L, 1892-1930, three L-movements, ABW and some special boltwork applications  
Quad M, 1893-1950, four M-movements<sup>3</sup>, MBW  
Quad N, 1893-1930, four M-movements<sup>3</sup>, ABW  
Triple O, 1893-1950, three M-movements<sup>3</sup>, MBW  
Triple P, 1893-1930, three M-movements<sup>3</sup>, ABW

### **Models introduced post 1900 all operated on manual boltwork unless otherwise noted (ABW):**

K31½ time and 4 tumbler combination lock, 1902-1911  
LS31 time and 4 tumbler combination lock, 1904-1916



T31½ dual movement pair, 1907-?, ABW  
 T-movement automatic, 1907, ABW  
 T-361 antecedent to Y361, 1908, ABW  
 Y-261, 1909-?, two Y-movements, ABW  
 Y-361, 1909-1929, three Y-movements, ABW  
 K 21, 1990-1920s  
 K 22, 1905-1940's  
 M 33, c.1920-c.1950s  
 M 44, c.1920-c.1950s  
 T-321, 1907-1950s  
 T-321 DAT, early 1930's  
 T-321 large case format, 1907-1950s  
 T-221, 1907-1950s  
 T-221 DAT, 1927-1950s  
 T-261 DAT, 1927-1950s  
 C-T274, 1930's-1940  
 K 421 DAT, early 1930's  
 K 22L, 1960-1970  
 K 33L, 1960-1970

### **Locks made for other time lock makers.**

Occasionally Yale was contracted to supply time locks to other makers, even those that would be considered competitors. What the logic on the part of Yale would be for this is unknown.

Automatic Triplex made for Banker's Dustproof of Victor, c. 1915  
 Mosler Type 1 with Yale R-movements, 1915

### **A photographic overview of the Yale & Towne product line pre-1900.**

Yale had a variety of case finishes and door designs. The example of each model will, when available, use the earliest case and door design.



Model 1, 1875-1892



Model 3, 1875-1892



Model 2, 1884



Model 4, 1884

Yale's Model 1 through 4 used an integrated plate design for both time lock movements, before trying a modular design in 1888. S&G also started out with an integrated movement plate for their Models 1 through 6, there was no model 5, and introduced their own modular design one year later in 1889. Hall Consolidated also began with a single plate design for their paired movements but stayed with this for longer than Yale or S&G until 1900.

### **The Yale B through EE line:**



Type A, 1887



Type B, 1888

The Type A was a patent model that was used to test the idea of a rotating movement table to wind a pair of movements. The movements were not modular in this model and it was never commercially produced.

The Type B through EE models were Yale's first attempt at a modular movement design. At the same time they also attempted to make use of an "off the shelf" movement that was already being produced by



the American Waltham Watch Company for the consumer pocket watch market, and to move away from the specialty movements made by the E. Howard Company. This would not be tried again until 1904 by the Consolidated Time Lock Co. using Elgin national Watch Co. movements. At the time Yale introduced their Type B, the E. Howard Company dominated the time lock movement market and was a premium clock and watch maker. Presumably they were also charging a premium price. This was Yale's attempt to circumvent E. Howard as well as to make the servicing of a time lock cheaper by allowing a safe tech to swap out a troublesome movement or even simply remove it and leave the other two to continue the time lock's protection of the safe while the third movement was taken to Yale or a local repair house for servicing. Before this a skilled watchmaker would be needed to perform a routine cleaning at the customer's location. Type B was the first production model using the modular design and was meant to operate on manually operated boltwork through a hole on the right side of the case. The movements were all mounted on a rotating table, a carousel which was turned to wind up the three movements simultaneously via a central gear.

The Type B through EE line of locks were a commercial failure with few of any of the models produced, the Type E had the greatest volume at 139 locks sold with the other models at a few dozen to less than a dozen and the Type G at zero. There were problems of reliability with the Waltham movements and the design did not make the swapping out of the movements as easy as Yale had hoped. The carousel tables of the Type B and C were difficult to use. The center key wind of the D and E mitigated this, but did not address the other issues. Yale actively tried to replace the B and C types with their D and E making the former exceedingly rare.



Type C, 1888



Type D, 1889

The type C used the same rotating carousel design, but was designed for use with a bolt motor for automatic bolt actuation via the trip lever seen on the top. Type D eliminated the carousel for a center winding square to wind the movements. It was used with manual boltwork that entered the lock through the hole on the right side.



Type E, 1889



Type EE, 1889

Type E used the same key wind design as the Type D but operated with a bolt motor using the same trip lever arrangement as the Type C. The Type EE was also referred to in Yale literature as the “Sextuple” and was two Type locks combined. It is thought that Yale also made a Type DD but none are known to survive. The DD and EE are the only time locks to have exceeded the prior maximum of four movements and to do it by two! This EE is the only known example at this time.



Type G, 1889



Type G with bolt motor in salesman sample case

The type G was Yale’s smallest time lock to date and used two instead of three Waltham movements. The second photo shows the time lock mounted to a Yale No. 2 bolt motor within a salesman sample case. It is believed Yale mounted many if not all of their samples in similar cases, yet this is the only Yale time lock sample case to survive. The type G was never commercially produced.



### The Yale K though P line:

The following locks K through P are illustrated with the full glass v.1; all were available after 1914 in the half glass design with winding holes through the metal portion of the door, v.2.



Triple K, 1892-1952, manual boltwork

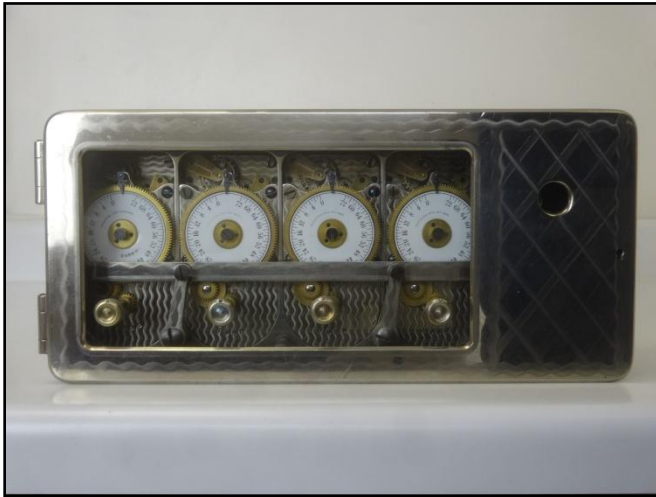


Triple L, 1892-1929, automatic

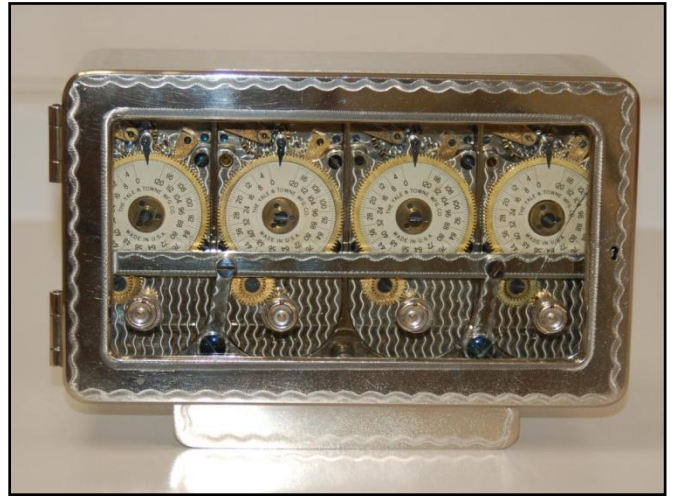
The Triple K and L were the first locks introduced with modular style movements by the E. Howard Co., dubbed the “coffin” style due to its movement plate shape. These were the first to use the L-movement size which went on to be the most popular made by Yale at well over 75,000 units. The bulge at the bottom of the case indicates the lock operates on an automatic; it is where the release lever was connected to the bolt motor. The popularity of automatically actuated boltwork began to fade in the late 1920’s, which is why the Model K had a longer run.



Quad K, 1893-1952. This case is a v.2 with the half glass door and the third and last case style, the silver satin finish. It also has Yale’s optional “throw off device” that could manually put the lock off guard after it had been wound. This flag showed through the glass. Other locks had a separate round ‘port hole’ window.



Quad M, 1893-1940



Quad N, 1893-1940



Triple O, 1883-1940



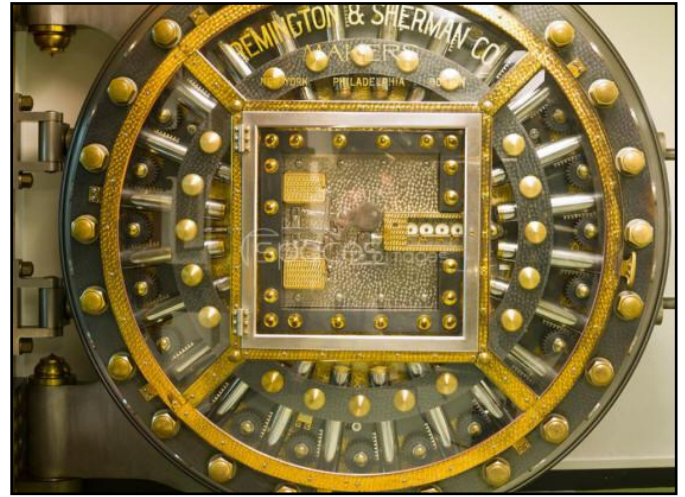
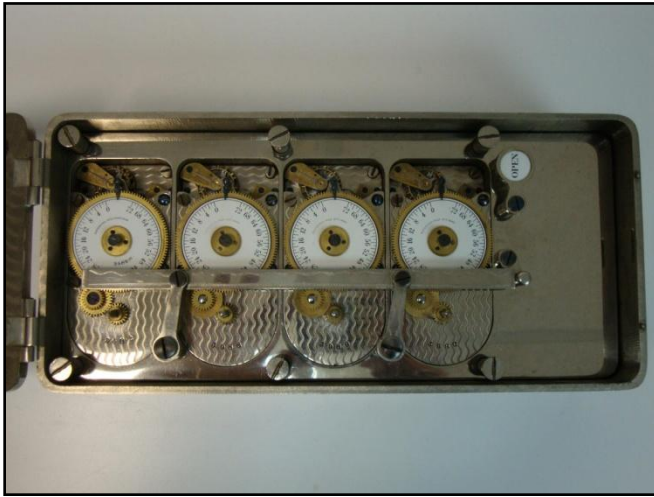
Triple P, 1883-1929

Models M through P were equipped with Yale's largest sized M-movement; and operated with manual and automatic boltwork. The Triple O shown has E. Howard movements. Howard produced only 200 M-movements before their exit from movement production around 1902. Seth Thomas took over at serial number 500 and produced these until 1916; nearly all with seventy-two hour duration and a few with ninety-six<sup>3</sup>. The hole located in the upper right sector of the door is a small window to display Yale's "throw off device" flag. A photo of this is shown next page.

### **Marketing drives the style and size of time locks**

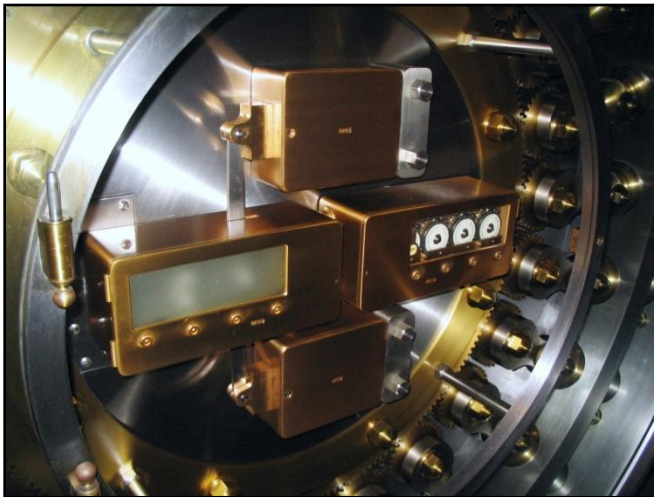
These locks were used in the largest vault doors. The fact is almost any sized time lock would work in even the largest doors. The upsizing in the size and number of movements as well as the overall size of the lock was largely marketing. It would not look right to have a tiny time lock controlling a very large door. Much of the look that was designed into safes, vaults and even entire bank buildings was to instill a feeling of strength, safety and responsibility. The Quad M was Yale's largest measuring 12 1/4" w x 5.5"h x 3.25"d and weighs in at 24 lbs. The Quad N was their largest automatic.



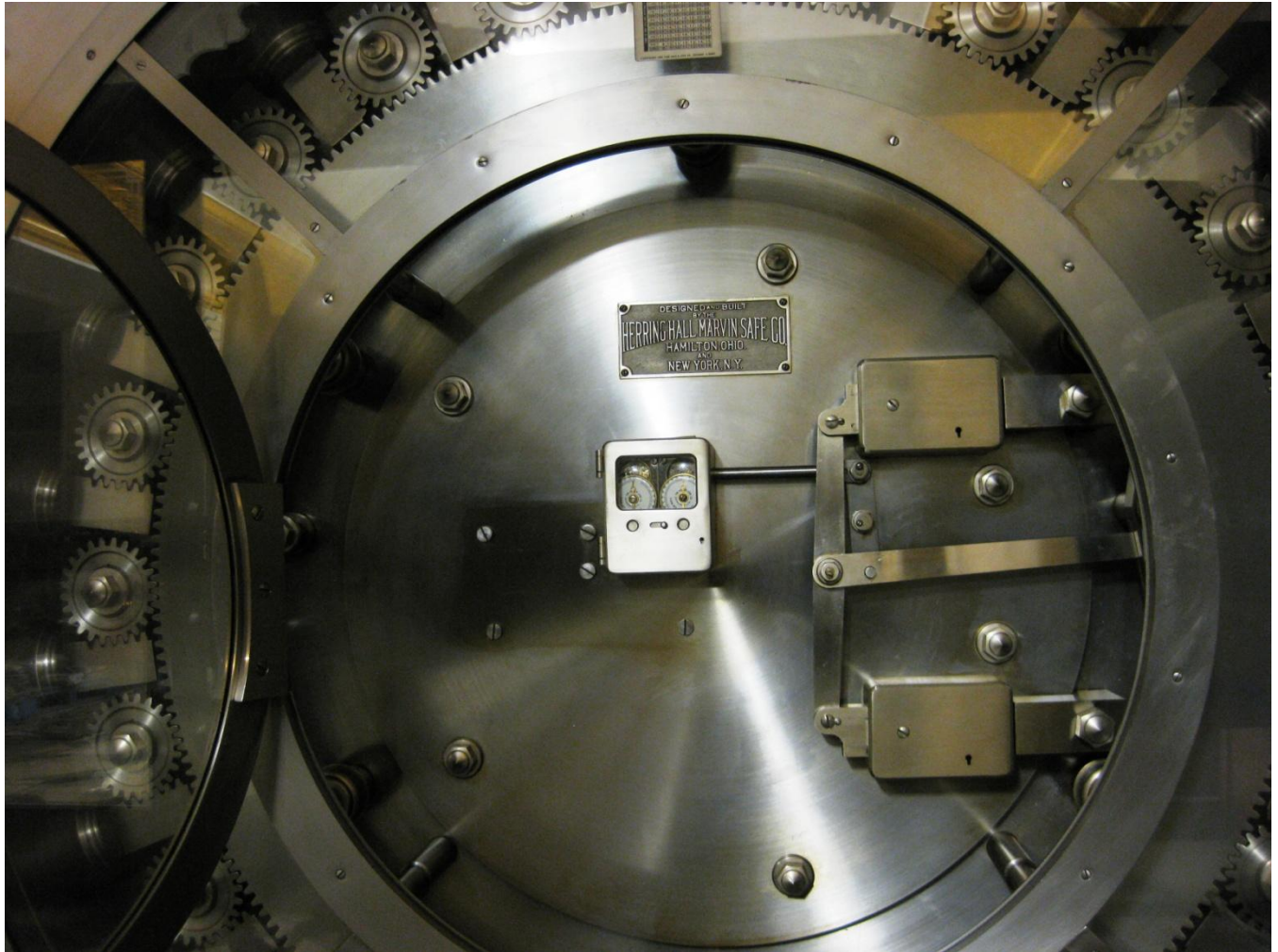


The first photo shows a Quad M with a throw off device. This allowed the operator to put the lock off guard after the movements had been wound. As pictured, the device is not activated, when engaged the flag is rotated clockwise and clicks into place pushing the bolt dog out of the way. The word “OPEN” shows through the door’s porthole window alerting the operator to the activation of the throw off device. It can be deactivated by pushing the snubber bar rightward; it will also be automatically disabled when the timers wound down to zero. This device was also an option on the Triple O, Triple K and Quad K.

The second photo shows a typical installation; here the the lock is a Quad M half-glass (v.2) with the bronze wave case finish making this lock somewhere between 1915 and c.1925. Even Yale’s largest time lock is dwarfed by the door. A lock half the size would almost disappear!



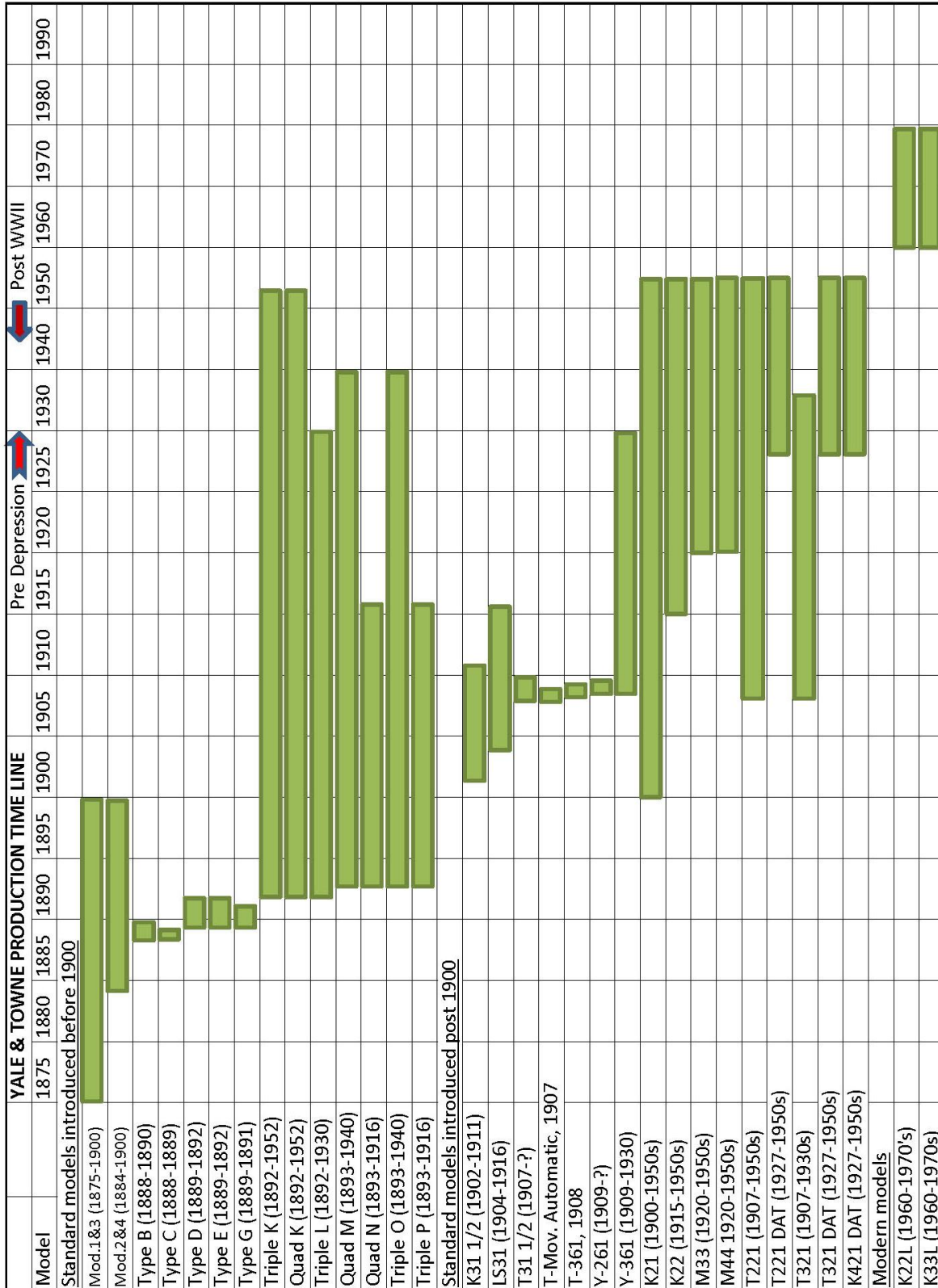
The first photo shows what appear to be two identical Quad M time lock cases. The one on the right is the time lock; on the left is a time lock case complete with winding holes in the door, but it contains the bolt dog linkage from the time lock to the combination lock pair. The case is unneeded; it is there to provide visual symmetry to the vault door and has frosted glass in place of where a clear glass insert would have been to hide the linkages. The second photo shows the same configuration but on a different door showing both the dummy and time lock cases open to reveal the bolt linkages within.



This photo shows why time locks were sized for the door they were mounted to. This Herring Hall Marvin vault has a 20 ton door and currently there is installed a small two movement Mosler, time lock. It looks too small to be up for the job. In fact if one looks carefully the shadow outline of a much larger time lock can be seen behind the Mosler. The extant bolt hole mounting pattern matches that for an S&G Model M; their largest standard model lock and over 2 ½ times the size of the Mosler. This also bears witness to the fact that just about any sized time lock would be perfectly suitable for any door.<sup>4</sup>

Another example of Yale making a time lock to fit the style of door can be seen in their Model M33 on page 32.

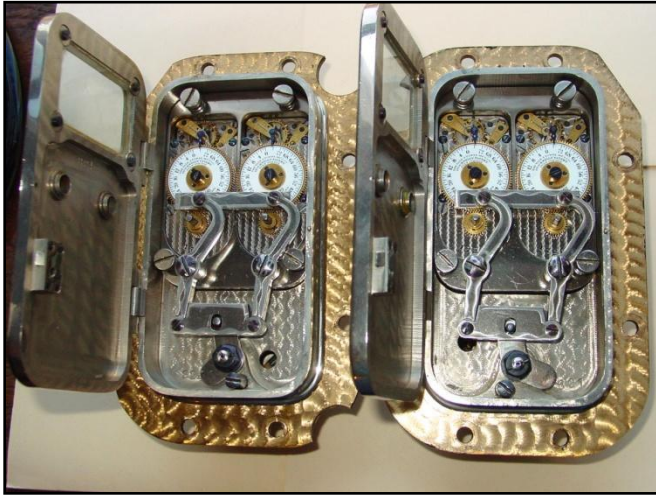




A time line for the major models produced by produced by Yale & Towne Company



**A photographic overview of the Yale & Towne product line post 1900.**



K31 1/2, 1902-1911

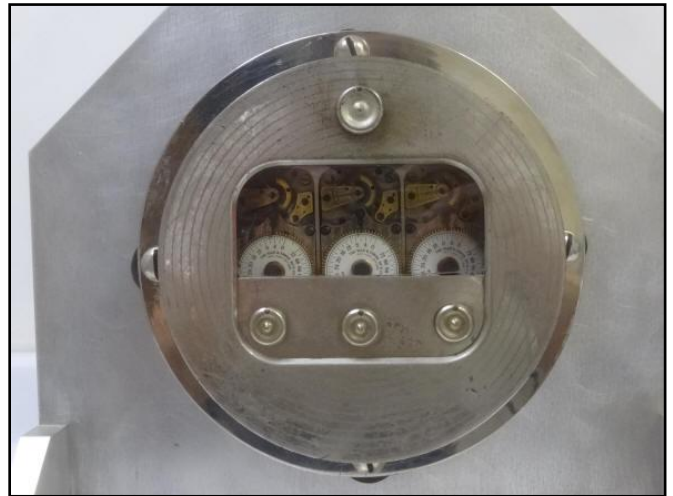


LS31, 1904-1916

These models were specifically designed for the New York City-based Hibbard-Rodman-Ely Safe Co., later taken over by the Manganese Steel Safe Co. in 1904. Both of these locks controlled a four tumbler combination lock housed behind the time lock in the bronze case. The combination of the timer and lock had not been seen since the S&G Model 1 in 1874 and the Consolidated Triple Guard in 1876.



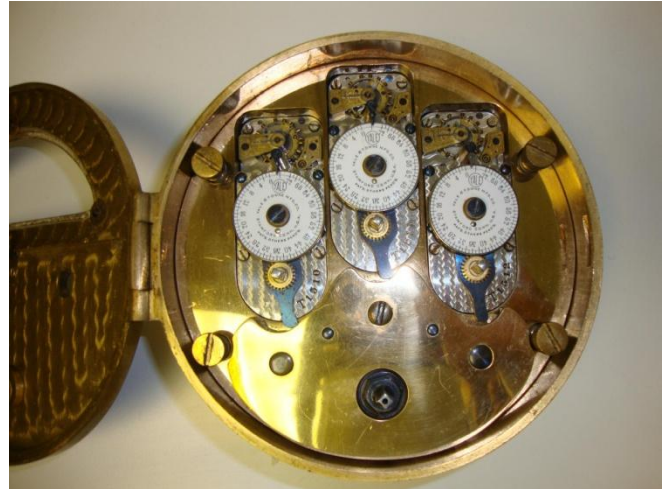
T31 1/2, 1907



T-Movement Automatic, 1907

The T31 1/2 superficially bears resemblance to the K31 1/2. But it ends there. The K31 1/2 was a combined timer and combination lock had Yale's popular L-movement, the T31 1/2 operated as a timer only and operated an automatic bolt motor and contained T-movements, Yale's smallest "coffin" style movement. This author has only seen only two examples with none appearing in catalogs, so the model number was dubbed T31 1/2. The second example is seen on a safe door later in this article.

The T-Movement Automatic was an interim design by Yale made for the Ely-Norris Safe Co.'s Cannonball-type safe. It replaced a time lock supplied by Consolidated Time Lock Co, until they stopped production in 1906.



T-261, 1908

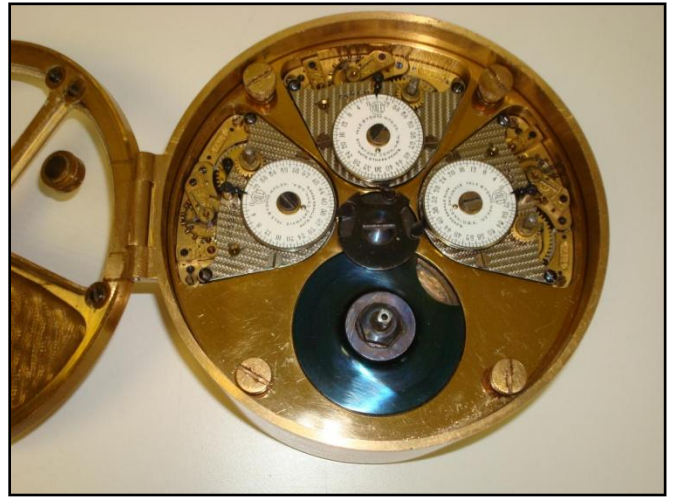
The T-261 succeeded the T-Movement Automatic for Ely-Norris Safe Co. and continued the use of three staggered T-movements. This was produced for only one year.



Y-261, 1909-?

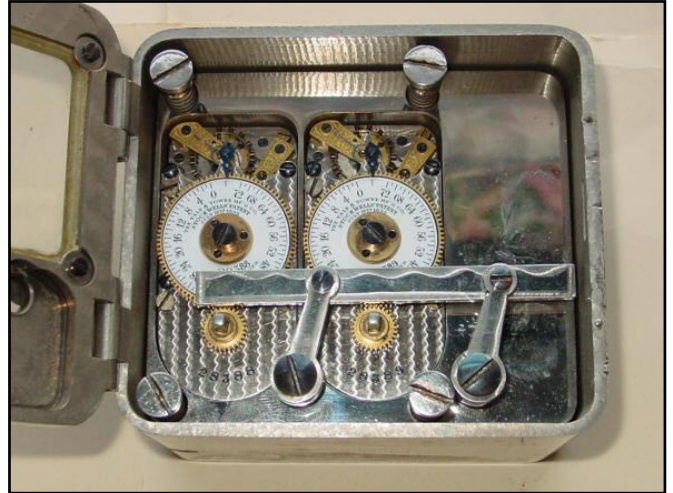
The Y-261 and Y-361, an entirely new movement and motor bolt design within the existing, round case was introduced for a new safe model, the Manard by Ely-Norris. The Y-261 was not successful with only two examples known. It is difficult not to apply an anthropomorphic face to this design. The first photo looks like the “Man in the Iron Mask”, the next the surprised look when the mask is removed not unlike the Edvard Munch painting “The Scream”; it all looks a bit creepy.





Y-361, 1909-1929

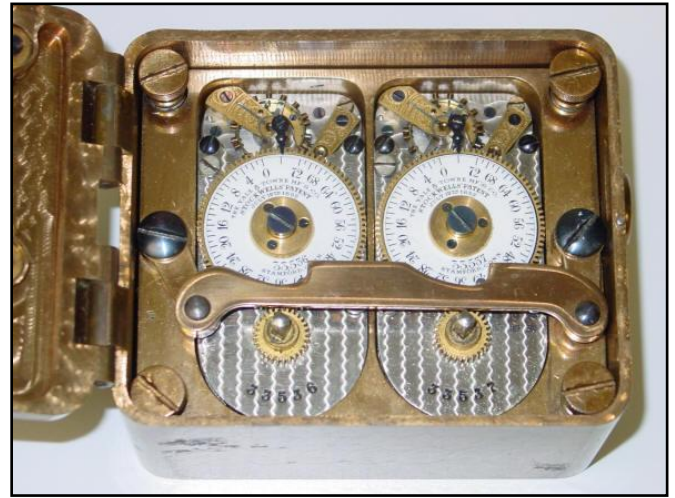
The Y-361, in contrast to the Y-261, was quite successful and saw some three thousand units sold. Perhaps the price point between the Y-261 and Y-361 was too narrow to justify the two movement model.



K21, 1890-1920's

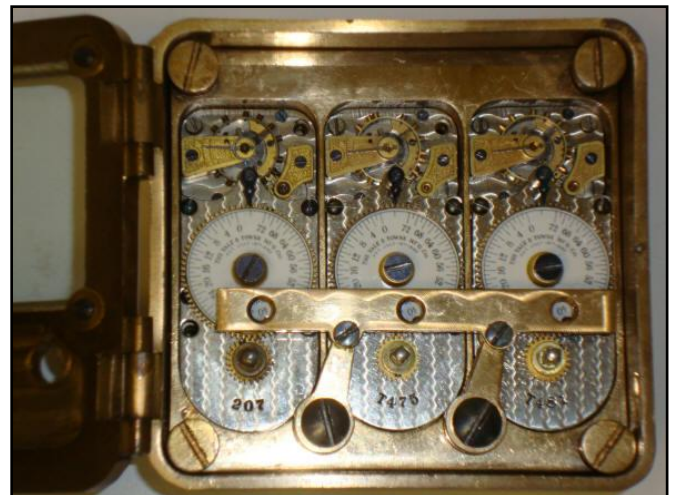
The K21 two movement lock featured Yale's L-movement, and was probably introduced before the 1907 debut of the smaller T-movement. It was in response to the rise in popularity of smaller safes.





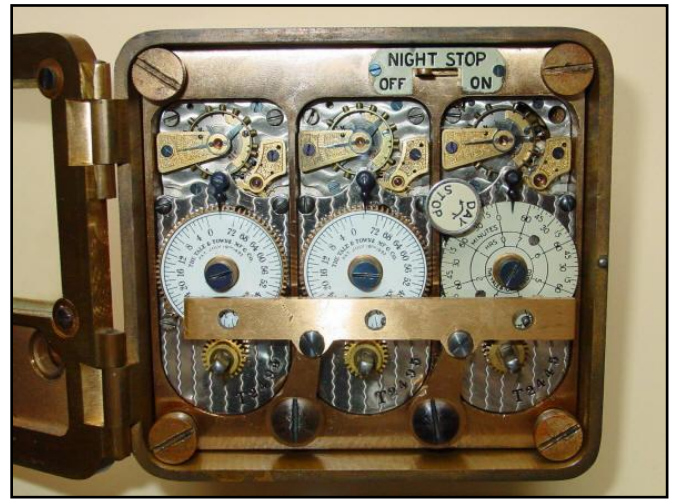
K22, 1905-1940's

The K22 had a slightly smaller format case design, but still using the L-movement.



T321, c.1907-1950's

Yale introduced their smallest "coffin" style movement the T-movement in 1907. This lock has one movement #207, #475 #481 making it early in both the t-movements as well as the bronze wave case finish which was introduced about 1908.



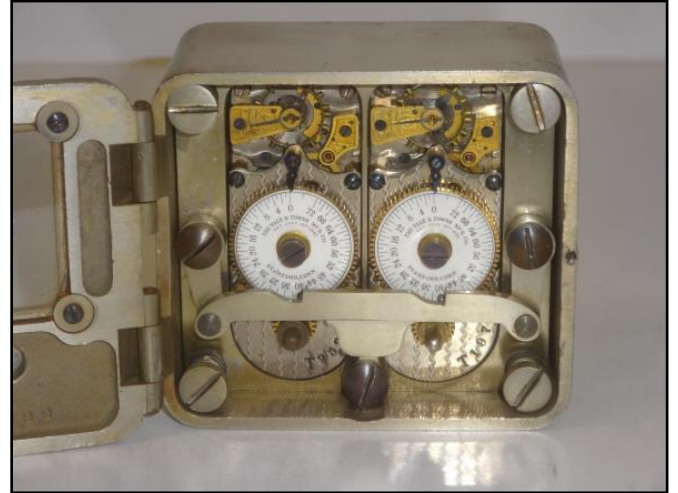
T321 DAT, c .early 1930's

This was Yale's first delayed action timer (DAT) model. The timer contains two conventional Seth Thomas seventy two hour Type T movements and one modified Type T movement that has seven hour duration. The 7 hour timer could be set for intervals as short as 15 minutes and when the DAY STOP knob is set that movement is stopped via a light lever touching the balance wheel, therefore that movement is always in check for whatever amount of time has been dial in. In the event of a daytime robbery, the proprietor need only close the door, or more likely the door is closed, and then turns the bolt actuator to trip the third short-term movement; by doing so the bolt is dogged for the amount of time previously dialed into that movement. Obviously a daytime robber will not be able to wait around for the time lock to run down. The NIGHT STOP switch is used to disable the third movement from being able to be activated preventing it from accidentally putting the time lock off guard in the middle of the night, and is switched off during the day to allow the DAY STOP feature to work. Obviously one can readily see a danger here. If one forgets to deactivate the DAY STOP by setting the NIGHT STOP it is possible to set the short term timer running and put the lock off guard in the middle of the night, making these early designs quite rare.



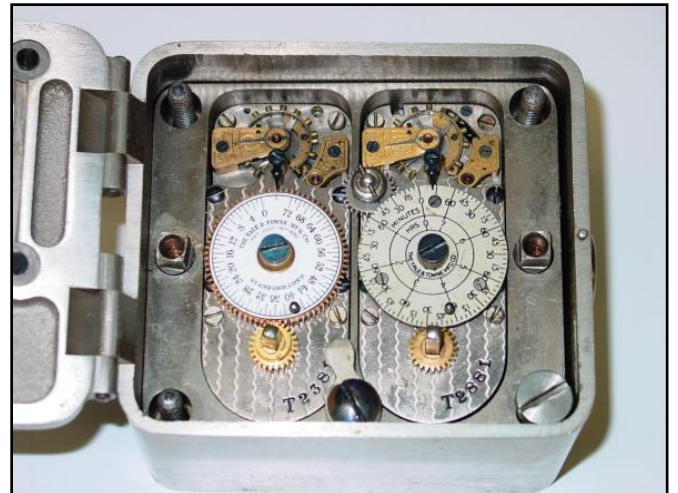
T321 large format case, c.1915-1950's. Occasionally one sees a time lock that is purposefully made larger than necessary; it is likely that this was done for esthetics to make the lock look appropriately robust for the surrounding door (see the M33 for a similar style).





T221, 1907-1950's

The 221 was the smallest style time lock made by Yale and was the second smallest two movement lock made.<sup>2</sup>



T221 DAT, 1927-1950's

This is the same size as the T221 but has one short term movement and would have been used to lock the cash drawer or money chest for a short time between 15 minutes up to seven hours. It operated like the T321 DAT but without the Day and Night Stop control.





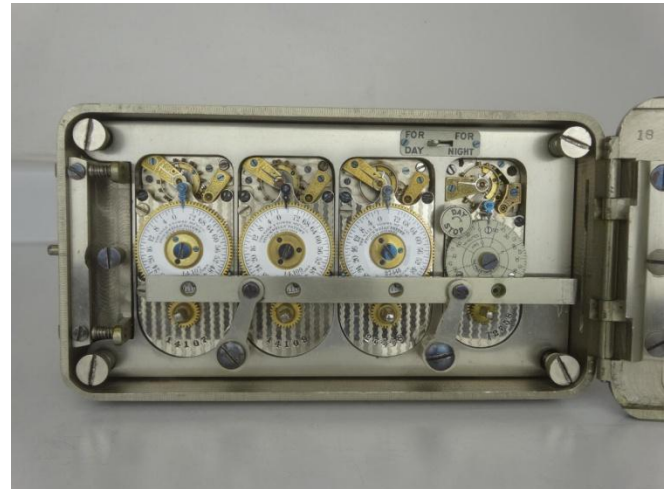
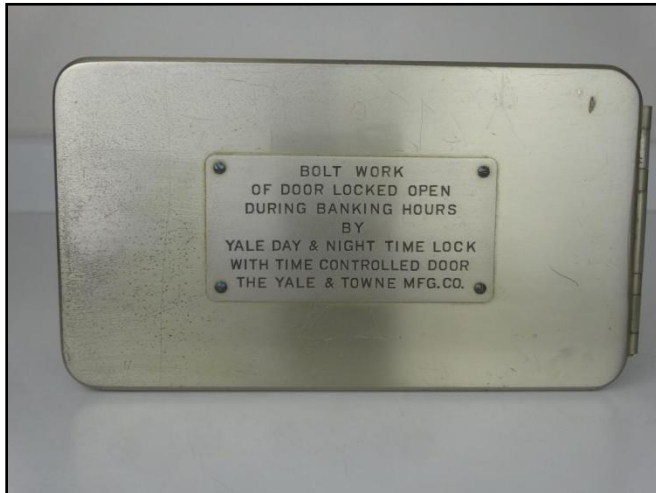
T261 DAT (Later DWC), 1930's-1960's

This time lock had two short term timers, thus it was strictly an *intraday timer*, unable to lock the bank chest or cash drawer overnight. This would be used like the T321 DAT. The two movements would be wound to a predetermined time interval, but held in check as long as the time lock was off guard and the bolt was inserted into to lock. When the operator closed the cash drawer, causing the bolt to be withdrawn from the time lock, the lock went immediately on guard for the time that had been dialed into the movements. A default time of 30 minutes is initiated even if the operator has not preset a time to ensure that the DAT function will protect the cash drawer even if the operator has let the timers run down to zero.



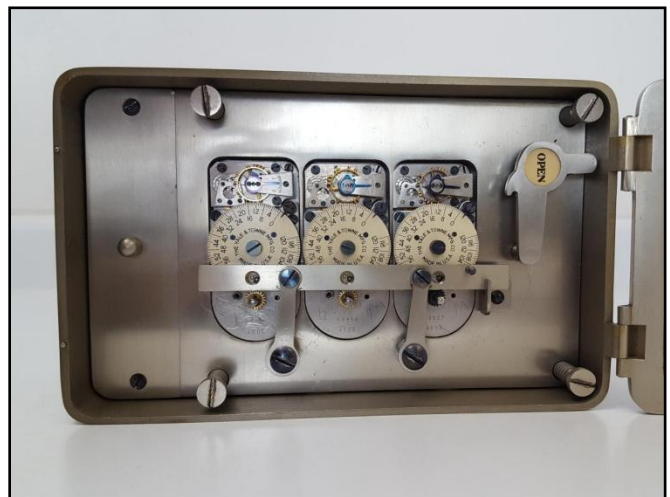
C-T274 DAT, 1930's

This lock has a center control device to override the snubber bar and keep the lock off guard even after the time locks had been wound, very similar to Yale's "throw off device" on their earlier, larger time locks.



K421 DAT, c. early 1930s

This lock operates exactly like the T321, but the three conventional timers are L-movements instead of T-movements. The short term timer, however, is still a T-movement as it is in all of Yale's other DAT models. Apparently Yale did not make their interval timer movements in any other size. This lock must have been meant for a larger safe installation, hence the need for larger and a greater number of conventional movements. It is the only Yale lock seen with a solid door, but curiously it does not have a key operated door lock, but was released with a push button. The plaque on the door is also curious, stating that "Bolt work of door locked open during banking hours...", what does this mean, that the boltwork is locked open? It seems contradictory.



M33, large case format, c.1950-1960's. The lock equipped with throw off device and early 1960's Swiss movements. The design is purposefully meant to display formidable bulk and solidity; it is 50% larger than the footprint of a model Triple K. A Yale catalog states, "This time lock is designed mechanically and *architecturally* (author's emphasis) for the heaviest vault door construction." See page 21 for a discussion on this topic. It is also the only model to use covered, levered winding eyelets. A Yale catalog indicates a four movement version, M44, none have yet been seen.

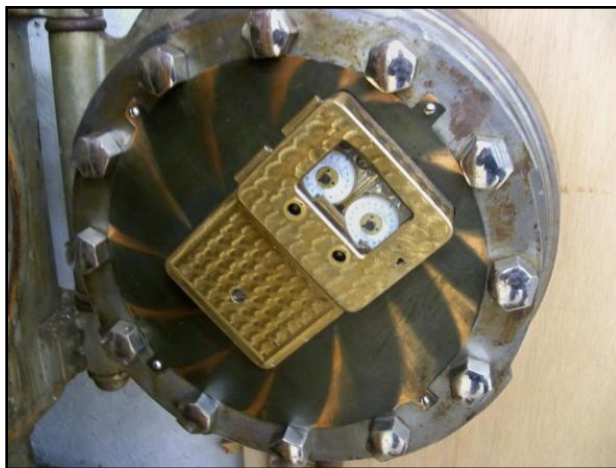




K22L and K33L, c.1970's. The case dimensions and mounting holes allowed these to be a direct drop in replacement for the K22 Triple K.

After looking at the models introduced post 1900 it may appear that Yale concentrated on smaller time lock formats and specialty DAT models. However, they did continue their mainstay models of the Triple and Quad K through the early 1950's with the K33L replacing the Triple K through 1970. Yale also retrofitted many of their older seventy two hour movements, in particular their M-movements found in their Quad M and Quad N to the longer duration 120 hour movements that became the standard duration around 1950 when time production restarted after the hiatus beginning in 1929 due to the Great Depression and WWII.

### Some interesting Yale & Towne time lock installations



Yale K22 in Diebold manganese money chest



Yale Quad N in Holler vault

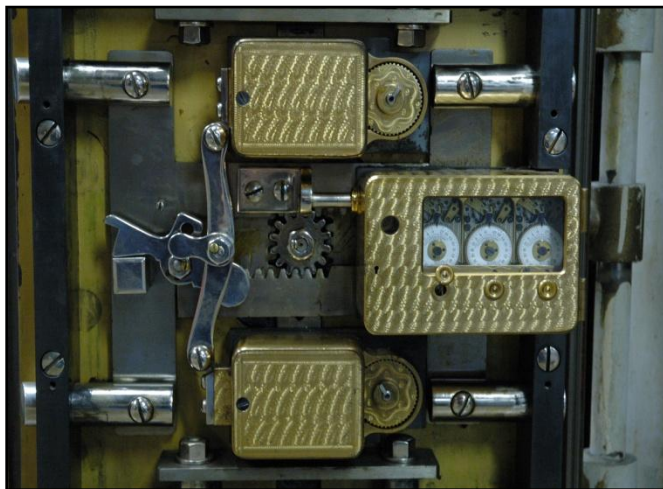




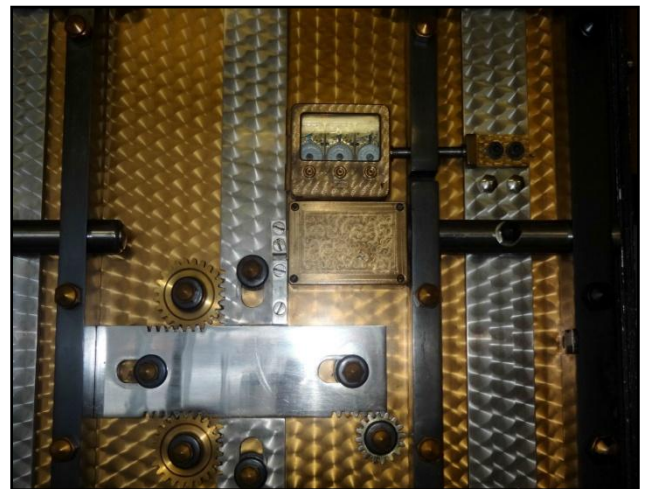
Yale Model 3 in Diebold safe



Yale Type E in Diebold safe



Yale Triple K in unknown vault



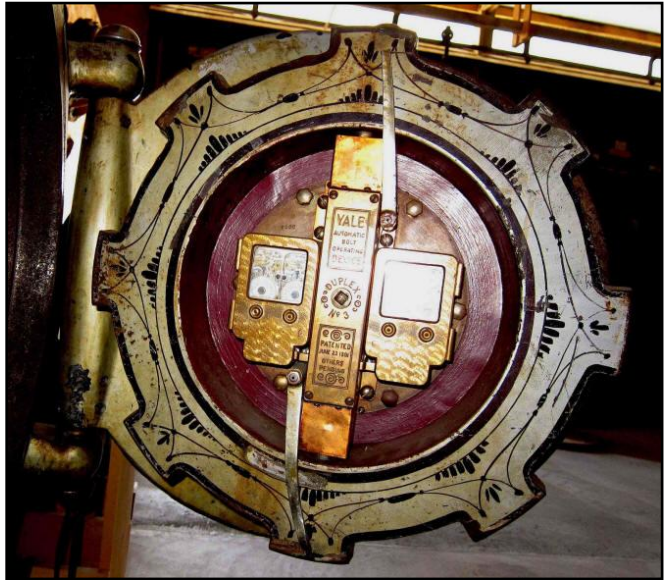
Yale T361 in Diebold vault door

The first photo shows what appear to be two identical Quad M time lock cases. The one on the right is a time lock case complete with winding holes in the door, but it contains the bolt dog linkage from the time lock to the combination lock pair. The case is unneeded; it is there to provide visual symmetry to the vault door. The second photo is of a different door but with the same configuration showing the dummy time lock case open to reveal the bolt linkages within.





Yale LS31 in Ely-Norris cannonball safe



Yale T31½ in Ely-Norris cannonball safe



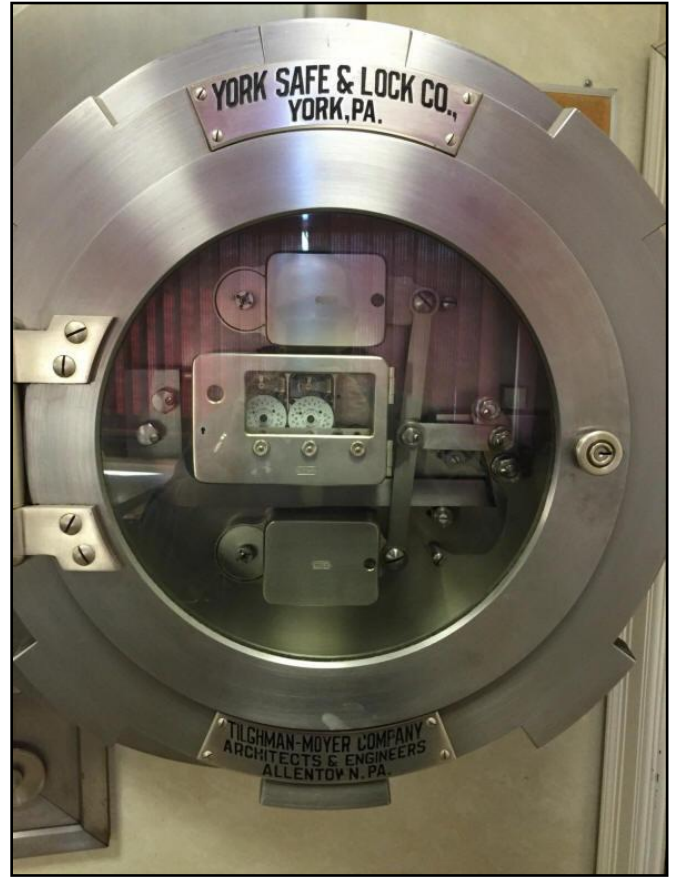
Yale Y261 in Ely-Norris cannonball safe



Yale Y361 in Ely-Norris cannonball safe



Yale K22 in Diebold safe



Yale Triple O in York Safe vault emergency door



Yale Triple L



Yale T321 DAT in Hall safe





Yale Triple K



Yale Triple K33L

1. Undated Yale & Towne sales brochure.

2. The Chicago Time Lock Company introduced their Perfection model time lock in 1886. It was a curious lock, shaped like a disk 3.25" in diameter and  $\frac{3}{4}$ " deep making this the smallest two movement time lock made, but it had little commercial success. The patent indicates this lock was designed to be fitted as a sixth tumbler in Hall Safe & Lock's largest #4 combination locks. It appears that this was never realized, but a few were made with a flush-mount flange for use where space was at a premium. [http://www.my-time-machines.net/perfection\\_time\\_lock.htm](http://www.my-time-machines.net/perfection_time_lock.htm) . Yale also created a similar design in their patent model precursor for their Type B and C and was designated as their Type A, Patent #363,918, May 31, 1887. Only the patent model survives but it is worthy to note that the diameter of this lock was the same as the Chicago Perfection model. While the patent made no mention of using it in the same manner as the perfection as a 6<sup>th</sup> tumbler, it is a tantalizing conjecture. The comparison can be seen here: [http://www.my-time-machines.net/yale\\_type\\_a.htm](http://www.my-time-machines.net/yale_type_a.htm) .

3. Yale introduced their largest time lock movement in 1893 made by E. Howard. Howard made only 500 of these movements before their exit from the time lock business in 1902. Seth Thomas then continued making the M-movement until about 1916. When the industry standard advanced to 120-hour movements after World War I, Yale offered to retrofit the earlier 72 -hour M-movements, a procedure that was still being done as late as 1970. American Genius, David and John Erroll, p. 276

4. Photo used by permission, Ryan Krakowski.